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*Synopsis*

A miscellaneous collection of mite parasites of Australian frogs, reptiles, birds, and mammals is detailed. The data are largely restricted to new host records and major extensions of geographical range. The 48 species belong to the following 10 families: Blattisociidae 1, Ameroseiidae 1, Dermanyssidae 4, Spinturnicidae 1, Sarcoptidae 2, Teinocoptidae 1, Knemidokoptidae 1, Ereyneidae 1, Cheyletidae 1, and Trombiculidae 35.

*Guntheria vegrandis*, n. sp. (Trombiculidae), is described from *Rattus fuscipes* in South Australia.

Over the years, many series of mites have accumulated beyond the scope of current studies. Taken individually, these records may be minor, but as a whole they provide a useful body of confirmatory records and considerable extensions of known geographical and host ranges. Their publication as the first of an occasional series will both place these data on record and underline that the "rarity" of many species is due only to the desultory collecting of the past. Only extensive and intensive collecting over the entire continent will provide a full picture of the ranges and host spectra of the mites parasitic on Australian vertebrates.

In the following list, families are in systematic order, and genera and species in alphabetic order. For brevity, and since this is a largely non-taxonomic paper, generic documentation is not given, this being available in Neave (1939-66). All measurements are in micra. Hosts are largely given after Worrell (1963), Leach (1958) and Ride (1970), a skeleton classification of the hosts listed being:

AMPHIBIANS: Frogs (*Hyla*).

REPTILES: Snakes (*Liasis*), lizards (*Lygosoma*, *Varanus*).

BIRDS: Hawks (*Falco*), owls (*Ninox*, *Tyto*), frogmouths (*Podargus*), kingfishers (*Sauromartia*), swifts (*Collocalia*), perching birds (*Artamus*, *Chloris*, *Climacteris*, *Eopsaltria*, *Hylacola*, *Hylochelidon*, *Malurus*, *Meliornis*, *Meliphaga*, *Myzantha*, *Oriolus*, *Pachycephala*, *Pomatostomus*, *Sericornis*, *Struthidea*).

MAMMALS: Marsupials (*Antechinus*, *Cercartetus*, *Dasyurus*, *Isoodon*, *Macropus*, *Potorous*, *Schoinobates*, *Thylogale*, *Trichosurus*, *Vombatus*), rodents (*Melomys*, *Rattus*), bats (*Miniopterus*, *Pteropus*), carnivores (*Felis*), primates (*Homo*).

The collectors, indicated by their initials, are: A. Agadjanian, R. Ainslie, W. H. Andrews, J. H. Arundel, G. J. Barrow, H. Battam, I. Beveridge, E. T. Bulfin, J. H. Calaby, R. W. Campbell, L. Cannon, C. E. Chadwick, G. de Chaneet, K. J. Chipperfield, J. Culley, J. J. Davis, R. Domrow, A. L. Dyce, I. D. Fanning, Penelope A. Graf, R. H. Green, E. Hamilton-Smith, W. B. Hitchcock, B. Elizabeth Horner, R. Jasper, B. H. Kay, K. Keith, Elizabeth Knox, Jacky Lowry, M. Josephine Mackerras, B. McMillan, Elizabeth N. Marks, G. M. Maynes, J. A. R. Miles, B. C. Mollison, D. E. Moorhouse, D. J. Moss, B. L. Munday, J. B. Paton, B. Pudney, K. Reye, N. Robinson, D. S. Saunders, J. H. Seebeck, Rosamond Shepherd, H. A. Standfast, P. D. Strong, J. Mary Taylor, R. Tumman, R. M. Warneke, J. S. Welch, S. H. Wheeler, R. H. Whitehead, G. Wolf, T. O. Wolfe, J. Wolfenden and Patricia A. Woolley. I thank them all.

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#### Family BLATTISOCIIDAE

##### Genus PROCTOLAE LAP S Berlese

#### 1. *Proctolaelaps pygmaeus* (Müller)

*Gamasus pygmaeus* Müller, 1859, *Z. Naturw.*, 9 : 29.

*Garmania nesbitti* Womersley, 1956, *J. Linn. Soc.*, 42 : 548. *New synonymy*.

*Material*. Many females causing annoyance, timber handlers, Brisbane, Qd, ix.1964, J.J.D.

Three females, *Rattus fuscipes*, Palmerston Highway, Qd, 3-10.xii.1963, G.J.B.

*Notes*. Hughes (1961) recorded this species both in association with mites of stored food products and as a free-living predator.

#### Family AMEROSEIIDAE

##### Genus KLEEMANNIA Oudemans

#### 2. *Kleemannia plumosa* (Oudemans)

*Seiulus plumosus* Oudemans, 1902, *Tijdschr. Ent.*, 45 : 17.

*Material*. Several females, Weelawadji Cave, near Eneabba, W.A., 8.x.1972, J.L.

*Notes*. See notes above on *Proctolaelaps pygmaeus*.

#### Family DERMANYSSIDAE

##### Genus STRATIOLAE LAP S Berlese

#### 3. *Stratiolaelaps miles* (Berlese)

*Laelaps (Iphis) miles* Berlese, 1892, *Acari, Myriapoda et Scorpiones hucusque in Italia reperta*, 63 : 9.

*Cosmolaelaps scimitus* Womersley, 1956, *J. Linn. Soc.*, 42 : 580. *New synonymy*.

*Material*. Two females, debris in total darkness in drains (inhabited by bats) in disused railway tunnel, Samford, Qd, 30.iv.1963, R.D. Three females, dark zone of Church Cave, Wee Jasper, N.S.W., 3.vi.1962, E.H-S.

Two females, *Collocalia vanicorensis*, Gatop, Finschhafen Subdistrict, New Guinea, x.1960, B.McM.

*Notes*. See notes above on *Proctolaelaps pygmaeus*.

##### Genus ICHORONYSSUS Kolenati

#### 4. *Ichoronyssus miniopteri* (Zumpt and Patterson)

*Neospinolaelaps miniopteri* Zumpt and Patterson, 1952, *J. ent. Soc. sth. Afr.*, 15 : 159.

*Material*. Three females, *Miniopterus schreibersii*, Naracoorte, S.A., 23.ii.1963, E.H-S. One female, four males, and one protonymph, *Miniopterus tristis*, Iawarere Caves, 09° 29' S, 147° 38' E, Central District, Papua, 10.vii.1973, D.E.M. and G.W.

*Notes*. Although the population of *M. schreibersii* in the Naracoorte caves is isolated and biologically distinct from others in Australia, these specimens,

and those of *Macronyssus aristippe* below, are typical. On the other hand, *Spinturnix loricata* Domrow (Spinturnicidae) from this host at Naracoorte is very distinct from *S. psi* (Kolenati) on other populations (Domrow, 1972).

Genus MACRONYSSUS Kolenati

5. *Macronyssus aristippe* (Domrow)

*Ichoronyssus aristippe* Domrow, 1959, PROC. LINN. SOC. N.S.W., 83 : 228.

*Material.* Numerous specimens, *Miniopterus schreibersii*, Naracoorte, S.A., 5.xi.1961, 12.ii and 1.ix.1962, and 23.ii.1963, E.H.S. One female, *Miniopterus australis*, We Lifou Cave, New Caledonia, i.1963, W.H.A.

*Notes.* See notes above on *Ichoronyssus miniopteri*.

Genus OPHIONYSSUS Mégnin

6. *Ophionyssus natricis* (Gervais)

*Dermanyssus natricis* Gervais, 1844, *Hist. nat. Insectes apt.*, 3 : 223.

*Material.* Three females, *Liasis childreui*, Townsville, Qd, 24.vii.1966.

*Notes.* This species is a serious pest of snakes in captivity (Camin *et al.*, 1964), but the above new host was captured in the wild.

Family SPINTURNICIDAE

Genus MERISTASPIS Kolenati

7. *Meristaspis calcarata* (Hirst)

*Ancystropus (Meristaspis) calcaratus* Hirst, 1923, *Proc. zool. Soc. Lond.*, 1923 : 983.

*Material.* Four females, three males, and one deutonymph (plus material in spirit), *Pteropus tonganus geddiei*, Ipota, Eromanga, New Hebrides, 10.viii.1971, A.A. (The Royal Society and Percy Sladen Expedition to the New Hebrides, 1971).

*Notes.* This is a new host record (Domrow, 1972).

Family SARCOPTIDAE

Genus NOTOEDRES Railliet

8. *Notoedres muris* (Mégnin)

*Sarcoptes notoedres* var. *muris* Mégnin, 1877, *Revue Mag. Zool.*, (3) 5 : 71.

*Material.* Many specimens causing mange, *Trichosurus vulpecula*, Pomonal, Vic., 31.iii.1968.

Many specimens causing severe mange of head and forequarters, *Isoodon macrourus*, Paddington, Brisbane, Qd, 5.ix.1955, R.D.

Many specimens causing mange on ears and face, *Melomys cervinipes*, North Stradbroke Island, Qd, iii.1973, E.K.

*Notes.* These records indicate that this parasite, whose normal hosts are murid rodents, especially *Rattus norvegicus* (see Fain, 1968), can also establish itself on a variety of native species.

Genus SARCOPTES Latreille

9. *Sarcoptes scabiei* (Linnaeus)

*Acarus Siro Scabiei* Linnaeus, 1758, *Systema Naturae*. Holmiae : Laurentii Salvii, 616.

*Material.* Many specimens causing mange, *Vombatus ursinus*, Saint Mary's, Tas., 24.xi.1971, B.L.M.

*Notes.* See notes above on *Notoedres muris*.

Family TEINOCOPTIDAE  
Genus TEINOCOPTES Rodhain

10. *Teinocoptes domrowi* Fain

*Teinocoptes domrowi* Fain, 1961, PROC. LINN. SOC. N.S.W., 85 : 269.

*Material.* Twenty females, *Pteropus scapulatus*, Mount Isa, Qd, ix.1966.

*Notes.* This is a new host record (Domrow, 1962b).

Family KNEMIDOKOPTIDAE  
Genus KNEMIDOKOPTES Fürstenberg

11. *Knemidokoptes jamaicensis* Turk

*Cnemidocoptes jamaicensis* Turk, 1950 (*sic*), *Parasitology*, 40 : 60.

*Material.* Numerous specimens causing scaly-leg, *Chloris chloris*, Beaumont, S.A., 17.xii.1963, J.B.P.

*Notes.* This is a new host record (Fain and Elsen, 1967).

Family EREYNETIDAE  
Genus LAWRENCARUS Fain

12. *Lawrencarus hylae* Fain

*Lawrencarus hylae* Fain, 1961, *Bull. Annl. Soc. r. ent. Belg.*, 97 : 247.

*Material.* One pallid adult inside mouth near entrances to nasal passages, *Hyla caerulea*, Kowanyama, Qd, 14.iii.1966, R.D. and P.A.G. (Four of six other *H. caerulea* with these data also harboured *L. hylae*, but the mites have been lost.)

*Notes.* The other known specimens from this host bear only the data Australia, 1880 (Fain, 1961).

Family CHEYLETIDAE  
Genus CHELETONELLA Womersley

13. *Cheletonella vespertilionis* Womersley

*Cheletonella vespertilionis* Womersley, 1941, *Rec. S. Aust. Mus.*, 7 : 61.

*Material.* Three females, nest of *Hylochelidon ariel*, Richmond, N.S.W., B.McM.

*Notes.* This species is probably a nidophile rather than a true parasite—bats are well known to frequent the disused nests of this bird (Kaiser and Hoogstraal, 1973).

Family TROMBICULIDAE  
Genus ASCOSCHOENGASTIA Ewing

14. *Ascoschoengastia lorius* (Gunther)

(Figs 1-8)

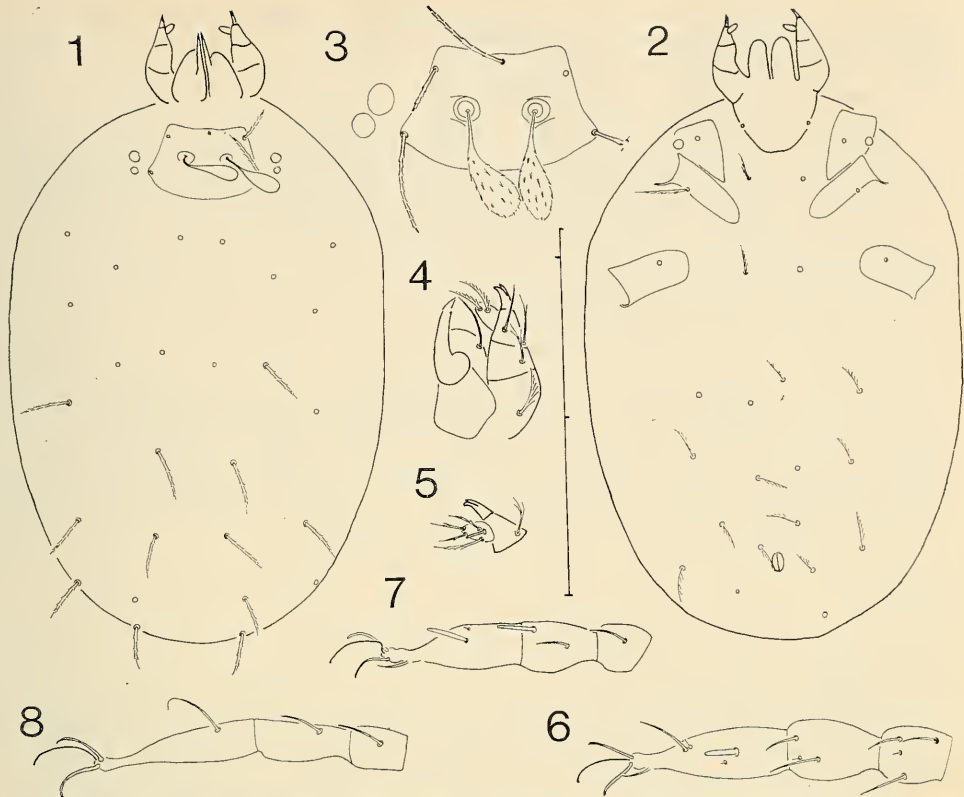
*Neoschöngastia lorius* Gunther, 1939, PROC. LINN. SOC. N.S.W., 64 : 86.

*Euschöngastia daria* Traub and Audy, 1954, *Stud. Inst. Med. Res. F.M.S.*, 26 : 81. *New synonymy.*

*Material.* Holotype and five paratypes, the only specimens remaining of the original series.

*Notes.* This little known species from a New Guinea parrot (*Lorius*) shows the following sexual measurements :

AW	PW	SB	ASB	PSB	SD	AP	AM	AL	PL	Sens	Specimen
43	61	22	20	22	42	22	—	18	35	36×10	Holotype
40	57	21	18	21	39	20	36	17	—	36×10	Paratype
42	57	22	18	23	41	—	32	17	—	35×11	"
42	59	22	20	21	41	20	34	17	34	38×10	"
39	56	21	18	20	38	22	—	—	35	35×10	"
41	58	22	19	21	40	21	34	17	35	36×10	—



Figs 1-8. *Ascoschoengastia lorius* larva. 1-2. Dorsal and ventral views of idiosoma (engorged). 3. Scutum and eyes. 4. Dorsal view of capitulum (cheliceral blade half turned and base foreshortened). 5. Ventral view of palpal tibiotarsus. 6-8. Specialized setation of legs I-III. (All drawn from holotype except Fig. 3; each division on scales=100 $\mu$ .)

15. *Ascoschoengastia rattus* (Womersley and Heaslip)

*Neoschoengastia rattus* Womersley and Heaslip, 1943, *Trans. R. Soc. S. Aust.*, 67: 118.

*Material.* Three larvae, *Trichosurus vulpecula*, Kelso, Tas., 16.ii.1961, B.C.M.

*Notes.* The scutal measurements of two of these specimens are:

AW	PW	SB	ASB	PSB	SD	AP	AM	AL	PL	Sens
35	51	17	20	20	40	30	25	12	35	34×8
33	53	19	20	20	40	28	23	12	36	35×8
34	52	18	20	20	40	29	24	12	36	34×8

This is a new host record (Nadchatram and Domrow, 1964).

Genus EUTROMBICULA Ewing

16. *Eutrombicula hirsti* (Sambon)

*Trombicula hirsti* Sambon, 1927, *Ann. Mag. nat. Hist.*, (9) 20: 157.

*Material.* Several attached larvae, forestry workers, Gin Gin, Qd, 16.ii.1971, K.R.

*Notes.* Previous records of this itch mite in Australia have been from North Queensland (Domrow, 1962*b*, 1967*b*).

17. *Eutrombicula macropus* (Womersley)

*Trombicula macropus* Womersley, 1936, *J. Linn. Soc.*, 40 : 112.

*Material.* Seven larvae attached to inner surface of knee, *Macropus giganteus*, Kowanyama, Qd, 25.x.1966, R. D. Eighteen larvae attached inside ear, *Macropus agilis*, Kowanyama, Qd, 25-26.x.1966, R.D.

*Notes.* This is the first record of this species since the original series from *Macropus*, Darwin, N.T., 1934.

18. *Eutrombicula tovelli* (Womersley)

*Trombicula* (? *Neotrombicula*) *tovelli* Womersley, 1952, *Rec. S. Aust. Mus.*, 10 : 116.

*Material.* Eleven larvae, *Varanus varius*, Eidsvold, Qd, 25.xi.1960, M.J.M. Eleven larvae, skink, Lower Ballunju, Lamington Plateau, Qd, 12.ii.1964, L.C. Twenty-two larvae attached in axillae and inguina, *Lygosoma fuscum*, Kowanyama, Qd, 14.iii.1966, R.D. and P.A.G. Three larvae, *Lygosoma challengerii*, Springbrook, Qd, 10.ii.1955, E.N.M.; nine larvae attached in axillae, *L. challengerii*, Canungra, Qd, iii.1971, R.D. and R.W.C.

*Notes.* These new host records confirm the preference of this species for lizards.

Genus GUNTHERIA Womersley

19. *Guntheria alpina* (Domrow)

*Guntherana alpina* Domrow, 1964, *Acarologia*, 6 : 327.

*Material.* Nine larvae, *Rattus fuscipes*, Tommy's Bend, Vic., 10.ii.1963, R.M.W.; five larvae, *R. fuscipes*, Mount Macedon, Vic., 18.xii.1963, R.M.W.; two larvae, *R. fuscipes*, Rifle Range, Pomborneit, Vic., 17.xii.1964, R.M.W.

*Notes.* These specimens, all from far south-eastern Australia, confirm the original record from Mount Kosciusko, N.S.W.

20. *Guntheria antipodiana* (Hirst)

*Schöngastia antipodianum* Hirst, 1929 (*sic*), *Proc. zool. Soc. Lond.*, 1929 : 175.

*Material.* Several larvae, *Rattus fuscipes*, Mount Magnificent, S.A., 20.vii.1970, R.A.

*Notes.* These specimens, from the type host, are virtually topotypic.

21. *Guntheria cassiope* (Womersley)

*Schöngastia* (*Ascoshöngastia*) *cassiope* Womersley, 1952, *Rec. S. Aust. Mus.*, 10 : 187.

*Material.* One larva attached at base of underside of bill, *Meliornis novaehollandiae*, road from Bulli to Appin, N.S.W., 26.vii.1967, H.B.

Many larvae attached inside ears, *Rattus sordidus*, Kowanyama, Qd, iv.1969, R.D. and E.T.B. Twenty larvae attached inside ears, *Rattus leucopus*, Dayman Point, Qd, 12-19.vi.1970, R.D. and R.W.C.

*Notes.* See notes below on *Guntheria coorongensis* and *Leptotrombidium deliense* with reference to the first two series. The third is a new host record.

22. *Guntheria coorongensis* (Hirst)

*Schöngastia coorongense* Hirst, 1929 (*sic*), *Ann. Mag. nat. Hist.*, (10) 3 : 565.

*Material.* Three larvae attached around cloaca, *Hylacola pyrrhopygia*, four miles west of Fairy Meadow, N.S.W., 27.xii.1967, H.B. Seventy larvae attached mostly around cloaca, but also on head and abdomen, and among

scapulars and retrices, *Sericornis frontalis*, near Fairy Meadow, N.S.W., 27.xii.1967, 29.i.1968, 24.ii.1968, 26.iii.1967, 16.iii.1968, and 13-15.iv.1968, H.B. ; three larvae, *S. frontalis*, Cordeaux Dam, N.S.W., 29.iii.1969, H.B. Two larvae, *Malurus cyaneus*, one mile west of Keira, N.S.W., 21.v.1972, H.B. Nine larvae attached around cloaca, *Meliornis novae-hollandiae*, four miles west of Fairy Meadow, N.S.W., 13.iii.1967, H.B.

Several larvae, *Antechinus stuartii*, near Melbourne, Vic., 29.vii.1972, R.S. ; two larvae, *A. stuartii*, Powelltown, Vic., 20.viii.1973, I.B.

Seven larvae, *Rattus fuscipes*, Pearl Beach, N.S.W., 4.i.1955, B.E.H. and J.M.T. ; many larvae, *R. fuscipes*, Bat's Ridge, Vic., 19-25.i.1968, J.H.S. ; many larvae, *R. fuscipes*, Bemm River and Bonang, Vic., 21-27.ii.1968, J.H.S. and R.T. ; several larvae, *R. fuscipes*, Dargo Road near Mount Saint Bernard, Vic., 14.ii.1967, K.J.C. ; several larvae, *R. fuscipes*, Otway Ranges, Vic., 13.iv.1968, J.H.S. ; several larvae, *R. fuscipes*, Heathmere, Vic., 22.vii.1968, J.H.S. ; several larvae, *R. fuscipes*, Rifle Range, Pomborneit, Vic., 17.xii.1964, R.M.W. Many larvae, *R. fuscipes*, Carey's Gully, Mount Lofty, S.A., vi-vii.1969, J.C. and B.P. ; several larvae, *R. fuscipes*, Mount Magnificent, S.A., 20.vii. 970, R.A. ; two larvae, *R. fuscipes*, Kangaroo Island, S.A., ii.1969, S.H.W. Several larvae, *Rattus lutreolus*, Bemm River, Vic., 26.ii.1968, R.T. ; several larvae, *R. lutreolus*, The Grampians, Vic., 28.iv.1968, J.H.S. ; several larvae, *R. lutreolus*, Healesville Sanctuary, Vic., 20-21.viii.1964, R.M.W.

*Notes.* Two considerable collections of chiggers from small ground mammals in north Queensland (Domrow, 1962*b*, 1967*b*) yielded large numbers of *Guntheria* spp., but only one species—*G. innisfailensis* (Womersley and Heaslip), see Domrow (1960*a*)—was recorded from a bird until Brennan (1965) and Brennan and Amerson (1971) consistently obtained *G. domrowi* (Brennan) from various waders in the central Pacific. The present records (and those of *G. cassiope* above and *G. pannosa* below) indicate birds are regular, if minor, hosts for *Guntheria* spp.

The specimens from South Australia may be regarded as topotypes, the species having been originally described from Robe.

### 23. *Guntheria derricki* (Womersley)

*Neoschongastia derricki* Womersley, 1939, *Trans. R. Soc. S. Aust.*, 63 : 162.

*Neoschongastia similis* Womersley and Heaslip, 1943, *Trans. R. Soc. S. Aust.*, 67 : 124. *New synonymy.*

*Guntherana (Derrickiella) rex* Domrow, 1960, *Pacif. Insects*, 2 : 212. *New synonymy.*

*Material.* Thirteen larvae, *Antechinus stuartii*, Condor Creek, A.C.T., 26.ii.1964, P.A.W. Five larvae, *Antechinus swainsonii*, above Silverband Falls, The Grampians, Vic., 3.xi.1962, R.M.W.

One larva, *Rattus fuscipes*, Pearl Beach, N.S.W., 4.i.1955, B.E.H. and J.M.T. ; 10 larvae, *R. fuscipes*, Bat's Ridge, Vic., 21.i.1968, J.H.S.

*Notes.* Domrow (1960*a*), while noting minor variation, maintained the above three nominal taxa ; more extensive collections, however, indicate synonymy. *G. similis* normally shows DS commencing 2.4.4, though 2.5.4 was noted once and 2.6.4 13 times. *G. derricki* normally shows 2.6.6, but this pattern is not uncommon (I can only say "not uncommon" since these specimens were deliberately selected) in long series that can only be assigned to *G. rex* (73 random specimens of which show 2.8.8 in 21, 2.8.7 in 19, 2.8.6 in 30, and 2.7.6 in three specimens).

The present series, the first collected outside Queensland, are also best assigned here. All are typical of *G. derricki* except that from Condor Creek. Here, the DS commence 2.8 in four, 2.9 in two, 2.10 in six, and 2.11 in one

specimen. It is difficult to decide the number of setae in the next row, but 8-10 is a fair approximation. Typical specimens have the following scutal standard data in micra :

AW	PW	SB	ASB	PSB	SD	AP	AM	AL	PL	Sens
66	85	33	26	22	48	17	61	29	90	—
72	89	37	24	25	49	17	59	29	77	—
65	81	31	23	23	46	16	58	24	82	—
64	82	33	24	24	48	14	64	25	88	—
67	85	34	24	25	49	16	60	29	90	—
67	85	37	24	25	49	16	61	29	87	39 × 18
67	84	34	24	24	48	16	60	28	86	39 × 18

24. *Guntheria kallipygos* (Gunther)

*Neoschöngastia kallipygos* Gunther, 1939, PROC. LINN. SOC. N.S.W., 64 : 83.

*Material.* Eight larvae attached to reddened, slightly scabby area on inner surface of thigh, *Macropus giganteus*, Yan Yean, Vic., x.1972, J.H.A.

One larva, *Trichosurus vulpecula*, Kelso, Tas., 16.ii.1961, B.C.M.

*Notes.* Previous records of this species are from New Guinea to south-eastern Queensland (Womersley, 1952 ; Domrow, 1961).

25. *Guntheria newmani* (Womersley)

*Schöngastia (Ascoshöngastia) newmani* Womersley, 1952, *Rec. S. Aust. Mus.*, 10 : 427.

*Material.* The syntype slide—this contains 16 over-cleared specimens.

Twenty-six larvae, *Cercartetus nanus*, Yackandandah, Vic., 23.iii.1965, R.M.W.

Five larvae, *Antechinus flavipes*, Tarago, near Goulburn, N.S.W., 29.iii.1970, N.R. ; 14 larvae, *A. flavipes*, Mundaring Road two miles from Kalamunda, W.A., 10.iv.1963, P.A.W. Ten larvae, *Antechinus stuartii*, Pearl Beach, 30 miles north-east of Sydney, N.S.W., 26.vii.1955, B.E.H. and J.M.T. ; one larva, *A. stuartii*, Paddy's River, A.C.T., 19.iv.1964, K.K. ; five larvae, *A. stuartii*, Mallacoota, Vic., 23.viii.1965, J.W.

Eight larvae, *Rattus rattus*, Pomonal, Vic., 2.iv.1968, J.H.S.

Seven larvae attached to ear, domestic cat, Shenton Park, W.A., 25.i.1973, G. de C.

*Notes.* Interestingly, the only other known series is also from a domestic cat (Western Australia, 1931).

26. *Guntheria pannosa* (Domrow)

*Guntherana (Guntherana) pannosa* Domrow, 1960, *Pacif. Insects*, 2 : 225.

*Material.* One larva attached among retrices, *Sericornis frontalis*, Mount Keira, N.S.W., 13.i.1968, H.B.

*Notes.* The only other known specimen of this species is from North Queensland.

27. *Guntheria peregrina* (Womersley)

*Schöngastia (Ascoshöngastia) peregrina* Womersley, 1952, *Rec. S. Aust. Mus.*, 10 : 220.

*Material.* Three paratypes.

Twenty-two larvae, *Schoinobates volans*, Esk-Toogoolawah district, Qd, 8.ii.1964, R.D. and I.D.F.



Eight larvae, *Antechinus bellus*, Victoria, Port Essington, N.T., 10.vii.1965, J.H.C. ; 15 larvae, *A. bellus*, Mount Brockman Range, N.T., 11.vii.1972, T.O.W.

*Notes.* The only other known series of this species is from North Queensland.  
28. *Guntheria philippensis* (Philip and Woodward)

*Neoschongastia philippensis* Philip and Woodward, 1946, *Am. J. trop. Med.* 26 : 158.

*Material.* About 20 larvae, *Isoodon macrourus*, Nourlangie Camp, South Alligator River, N.T., 17.viii.1962, J.H.C.

*Notes.* These specimens, and their scutal measurements, fit the original description so closely that the presence of this species in Australia can no longer be doubted (Domrow, 1960a, 1961).

*Scutal standard data in micra of G. philippensis*

AW	PW	SB	ASB	PSB	SD	AP	AM	AL	PL	Sens
48	69	19	21	12	33	21	25	42	42	—
53	73	18	21	13	34	22	22	41	—	—
49	66	20	22	12	34	22	24	37	46	—
49	68	19	20	11	31	21	25	43	43	—
43	66	16	20	10	30	21	24	40	—	—
50	75	20	20	12	32	22	24	—	45	25 × 16
49	70	19	21	12	32	22	24	41	44	25 × 16

29. *Guntheria quatuor* Domrow

*Guntheria quatuor* Domrow, 1972, *J. Aust. ent. Soc.*, 11 : 103.

*Material.* Several larvae, *Rattus fuscipes*, Bat's Ridge, Vic., 19–25.i.1968, J.H.S. ; several larvae, *R. fuscipes*, Kalorama, Dandenong Ranges, Vic., 18.ii.1965, J.H.S. ; several larvae, *R. fuscipes*, Bemm River and Bonang, Vic., 21–26.ii.1968, J.H.S. and R.T. ; one larva, *R. fuscipes*, Rifle Range, Pomborniet, Vic., 17.xii.1964, R.M.W. Two larvae, *Rattus lutreolus*, Bemm River, Vic., 26.ii.1968, R.T.

*Notes.* Although this species was described from Western Australia, the present series show all three diagnostic characters (entire sensillary insertions in front of PL, six setae in first row of DS, and three genualae I), and the following minor deviations from the original description are therefore considered to fall within the range of intraspecific variation : AM > AL (the opposite is true of the type series) ; galeal setae with one-three branches (but occasionally nude as in the type series) ; dorsal palpal tibial seta nude (in the type series, this seta may be so lightly branched as to appear virtually nude).

*Scutal standard data in micra of G. quatuor*

AW	PW	SB	ASB	PSB	SD	AP	AM	AL	PL	Sens
57	81	17	33	16	49	38	57	46	69	35 × 20
59	80	17	33	16	49	41	50	53	72	34 × 18
63	86	20	30	13	43	37	53	49	73	36 × 17
60	83	17	32	13	45	39	57	43	72	36 × 20
61	85	20	33	13	46	37	54	43	71	33 × 19
64	86	20	32	14	46	39	58	46	73	36 × 20
—	—	—	—	—	—	—	57	49	72	—
—	—	—	—	—	—	—	58	48	80	—
—	—	—	—	—	—	—	59	51	74	—
—	—	—	—	—	—	—	53	49	67	—
61	84	18	32	14	46	38	56	48	72	35 × 19

30. *Guntheria queenslandica* (Womersley)

*Neoschongastia queenslandica* Womersley, 1939, *Trans. R. Soc. S. Aust.*, 63 : 162.

*Material.* Numerous specimens, domestic cat, Colo Vale, N.S.W., 15.viii.1960, A.L.D.

*Notes.* This is a new host record, but Domrow (1960a) recorded the species from this locality on rabbits.

31. *Guntheria shieldsi* (Gunther)

*Neoschöngastia shieldsi* Gunther, 1941, *Proc. Linn. Soc. N.S.W.*, 66 : 158.

*Material.* One larva, *Cercartetus nanus*, Yackandandah, Vic., 23.iii.1965, R.M.W.

Two larvae, *Antechinus stuartii*, near Melbourne, Vic., 29.viii.1972, R.S.

*Notes.* Previous records of this species are from New Guinea and Queensland (Domrow, 1960a).

32. *Guntheria smithi* (Womersley)

*Neoschongastia smithi* Womersley, 1939, *Trans. R. Soc. S. Aust.*, 63 : 164.

*Material.* Ten larvae, *Rattus leucopus*, Dayman Point, Qd, 16.vi.1970, R.D. and R.W.C.

*Notes.* This is a new host record (Domrow, 1962b, 1967b).

33. *Guntheria vegrandis*, n. sp.

(Figs 9–15)

*Diagnosis.* *G. vegrandis* belongs in the subgenus *Derrickiella* Audy and Domrow (see Domrow, 1960a), and keys out near *G. dumosa* (Womersley, 1952). The latter species, however, shows stout, stiffly barbed dorsal setae, a convex posterior scutal margin, subglobose sensillae, and tarsala I set distally, almost level with the subterminala. The new species has a biconvex posterior scutal margin as in *G. coorongensis*, but is readily separable in that the dorsal setae commence 2.10.10.10 rather than 2.6.6.6.

*Types.* Holotype and nine paratype larvae attached inside ears, *Rattus fuscipes*, Carey's Gully, Mount Lofty, S.A., vi and vii.1969, J.C. and B.P. Holotype and three paratypes in Australian National Insect Collection; six paratypes in Queensland Institute of Medical Research.

One larva (not a type), *Antechinus stuartii*, Powelltown, Vic., 23.vii.1973, I.B.

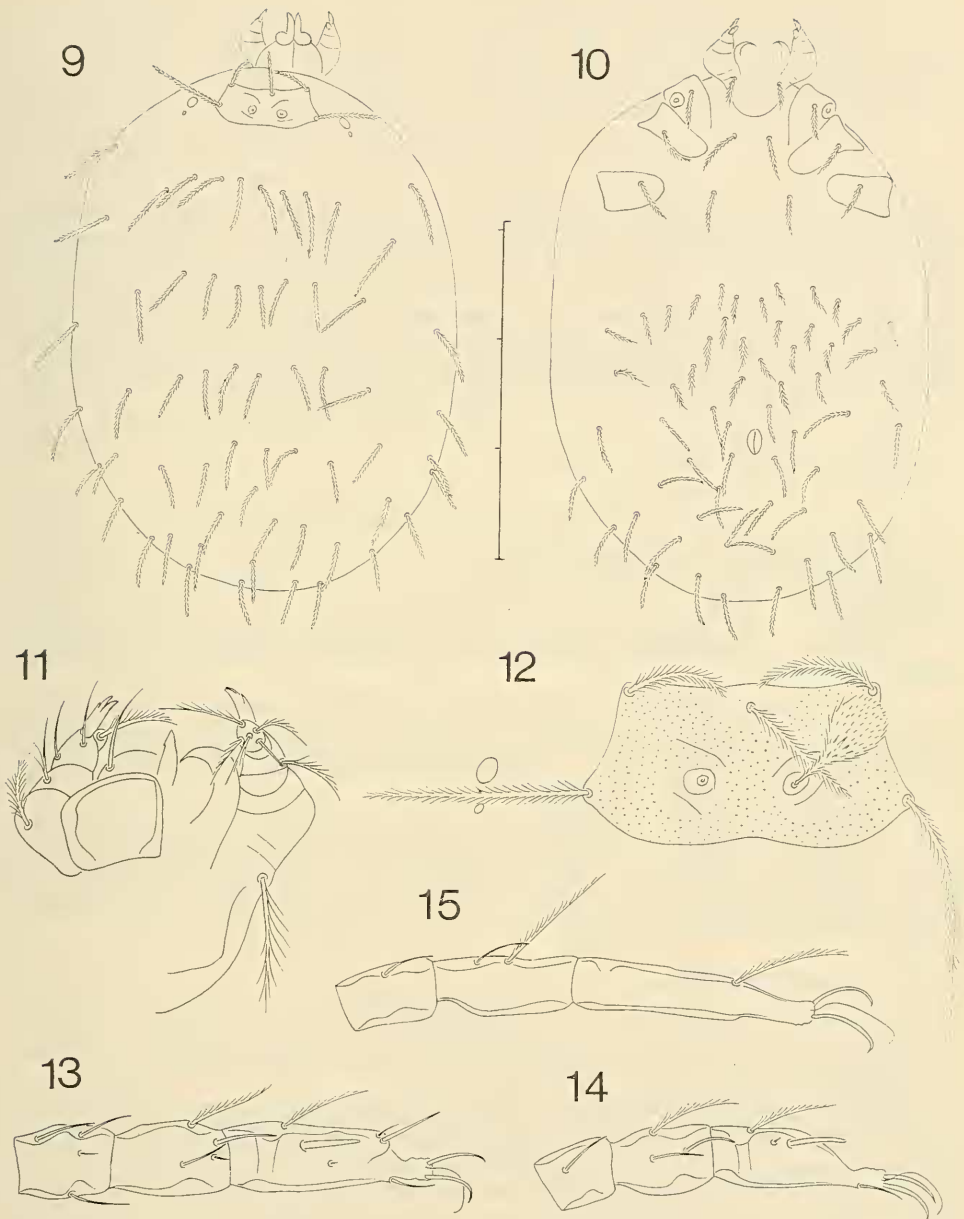
*Larva.* Palpi of usual proportions, with three-pronged tibial claws. Setation B.b.nnb.5B+T; subterminala absent. Capitular setae two, well branched. Galeal setae nude. Chelicerae unarmed except for usual tricuspid cap; bases appearing foreshortened in all specimens, but without obvious posterolateral expansions.

Body with annulate cuticle. Dorsal setae arranged

2.10(11,12).10(11,12).10(11)+28.

Intercoxal setae 2+2. Ventral setae 60.

Scutum with anterior margin sinuous, lateral margins slightly concave, and posterior margin biconvex. Surface lightly punctate except behind AM and SB. PL<sub>1</sub>/AM<sub>1</sub>/AL<sub>1</sub>, with PL and AL set on distinct corners, and AM well behind margin. Sensillae spiculate, clavate, and set slightly in front of PL. Eyes 2+2, but weak, particularly posterior pair.



Figs 9-15. *Guntheria vegrandis* larva. 9-10. Dorsal and ventral views of idiosoma (engorged). 11. Dorsal and ventral views of capitulum (cheliceral base foreshortened). 12. Scutum and eyes. 13-15. Specialized setation of legs I-III. (Each division on the scales = 100  $\mu$ .)

*Scutal standard data in micra of G. vegrandis*

AW	PW	SB	ASB	PSB	SD	AP	AM	AL	PL	Sens
74	94	28	29	20	49	33	44	41	67	35×17
74	95	29	29	20	49	32	48	—	66	34×18
73	90	29	27	20	47	30	45	38	67	—
71	90	27	—	—	—	—	48	—	72	37×16
74	93	30	31	19	50	32	48	—	72	—
74	90	29	31	20	51	35	50	42	72	—
73	92	29	29	20	49	32	47	40	69	35×17

Leg I with pretarsala, subterminala, parasubterminala, tarsala and micro-tarsala; two tibialae and microtibiala; three genualae and microgenuala. Leg II with pretarsala, tarsala and microtarsala; two tibialae; genuala. Leg III with tibiala; genuala. Coxae 1.1.1 (two paratypes show two setae on coxa III on one side; the specimen from *Antechinus* shows two setae on both coxae III); trochanters 1.1.1; basifemora 1.2.2; telofemora 5.4.3; genua 4.3.3; tibiae 8.6.6; tarsi not counted (of these barbed setae, none are unduly long and outstanding). All tarsi with two simple claws and empodium.

*Notes.* The specific name is a Latin adjective (*vegrandis*, not very large), and refers to the diminutive eyes.

Genus LEPTOTROMBIDIUM Nagayo *et al.*34. *Leptotrombidium akamushi* (Brumpt)

*Trombidium akamushi* Brumpt, 1910, *Précis de Parasitologie*. Paris: Masson & Cie, 506.

*Material.* Several larvae, *Rattus exulans*, Nendo Island, Santa Cruz, Solomon Islands, J.A.R.M.

*Notes.* These typical specimens confirm the known limit of this essentially Asian vector of scrub typhus (Womersley, 1952). The disease occurs still further south-east in the New Hebrides, where the vector is inferred to be *L. deliense*, the following species (Audy, 1961).

Fortunately, Philip's proposal (1961) now before the International Commission on Zoological Nomenclature to validate this name is not compromised by Vercaemmen-Grandjean's (1969) selection of a "lectotype"—though his formal designation on page 100 reads "holotype"—in circumstances that demand a neotype (see Articles 74 and 75).

35. *Leptotrombidium deliense* (Walch)

*Trombicula deliensis* Walch, 1922, *Geneesk. Tijdschr. Ned.-Indië*, 62: 552.

*Material.* Two larvae attached inside ear, *Rattus sordidus*, Belbora, Kowanyama, Qd, iv.1969, R.D. and E.T.B.

*Notes.* An unexpected record. Previous Australian material was all from the eastern side of Cape York Peninsula, normally in tropical vegetation (particularly rain forest) with over 60 inches of rain per year. Kowanyama is on the western side of the Peninsula, but watered by the Mitchell River, which rises far to the east. The annual rainfall is only about 45 inches, almost all of which falls in a circumscribed "wet" (December–March); the "dry" (April–November) is characterized by heat and very low humidity (Domrow, 1967a). However, both infested rats were collected in tall grass close to dense undergrowth under a clump of mango trees along the banks of permanent pools at Belbora. A situation not unlike this was noted at Rocky Creek, Qd, described by Barrow, Domrow and Derrick (1963).

36. *Leptotrombidium myzantha* (Womersley)

*Trombicula* (*Leptotrombidium*) *myzantha* Womersley, 1952, *Rec. S. Aust. Mus.*, 10 : 71.

*Material.* Six larvae, *Falco cenchroides*, Kowanyama, Qd, iv.1969, R.D.

Numerous larvae, *Ninox novaeseelandiae*, Kowanyama, Qd, iv.1969, R.D., A.L.D. and H.A.S. Numerous larvae, *Ninox connivens*, Kowanyama, Qd, iv.1969, R.D., A.L.D. and H.A.S. Numerous larvae, *Tyto alba*, Kowanyama, Qd, iv.1969, R.D., A.L.D. and H.A.S.

Numerous larvae, *Podargus strigoides*, Kowanyama, Qd, iv.1969, R.D., A.L.D. and H.A.S.; six larvae, *P. strigoides*, Mudginberri, N.T., 31.iii.1971, A.L.D. and H.A.S. Numerous larvae, *Podargus papuensis*, Kowanyama, Qd, iv.1969, R.D., A.L.D. and H.A.S.

Ten larvae, *Pomatostomus temporalis*, Condamine, Qd, 12.i.1966, R.D., D.J.M. and J.S.W. Two larvae, *Pachycephala rufiventris*, Charleville, Qd, 18.i.1966, R.D., D.J.M. and J.S.W. Three larvae, *Meliphaga flava*, Kowanyama, Qd, 25.x.1965, R.D. Five larvae, *Myzantha melanocephala*, Condamine, Qd, 12.i.1966, R.D., D.J.M. and J.S.W. Ten larvae, *Struthidea cinerea*, Condamine, Qd, 12.i.1966, R.D., D.J.M. and J.S.W.

*Notes.* Previous records (Gill, Moule and Riek, 1945; Domrow, 1966) are from a wide variety of passeriform birds. The present series, however, are largely from non-passeriform predators (one diurnal kestrel and five species of nocturnal owls and frogmouths). Almost all of more than 30 predators examined were infested, the number of chiggers per bird ranging up to 1,800. There was a light admixture (5–10%) of a second bird-specific chigger, *Neoschoengastia americana* (see below), the infestations doubtless having been acquired while taking prey in dense grassland under open sclerophyll forest.

*Scutal standard data in micra of L. myzantha*

AW	PW	SB	ASB	PSB	SD	AP	AM	AL	PL	Sens
70	76	22	30	15	45	32	33	40	56	56
66	76	22	27	16	43	29	30	37	58	—
73	81	24	27	16	43	30	30	36	56	56
75	85	25	32	17	49	31	37	42	59	64
67	77	22	27	17	44	29	35	41	56	58
69	78	—	—	—	—	29	—	41	54	—
70	79	23	29	16	45	30	33	40	56	58

37. *Leptotrombidium robustum* (Gunther)

(Figs 16–22)

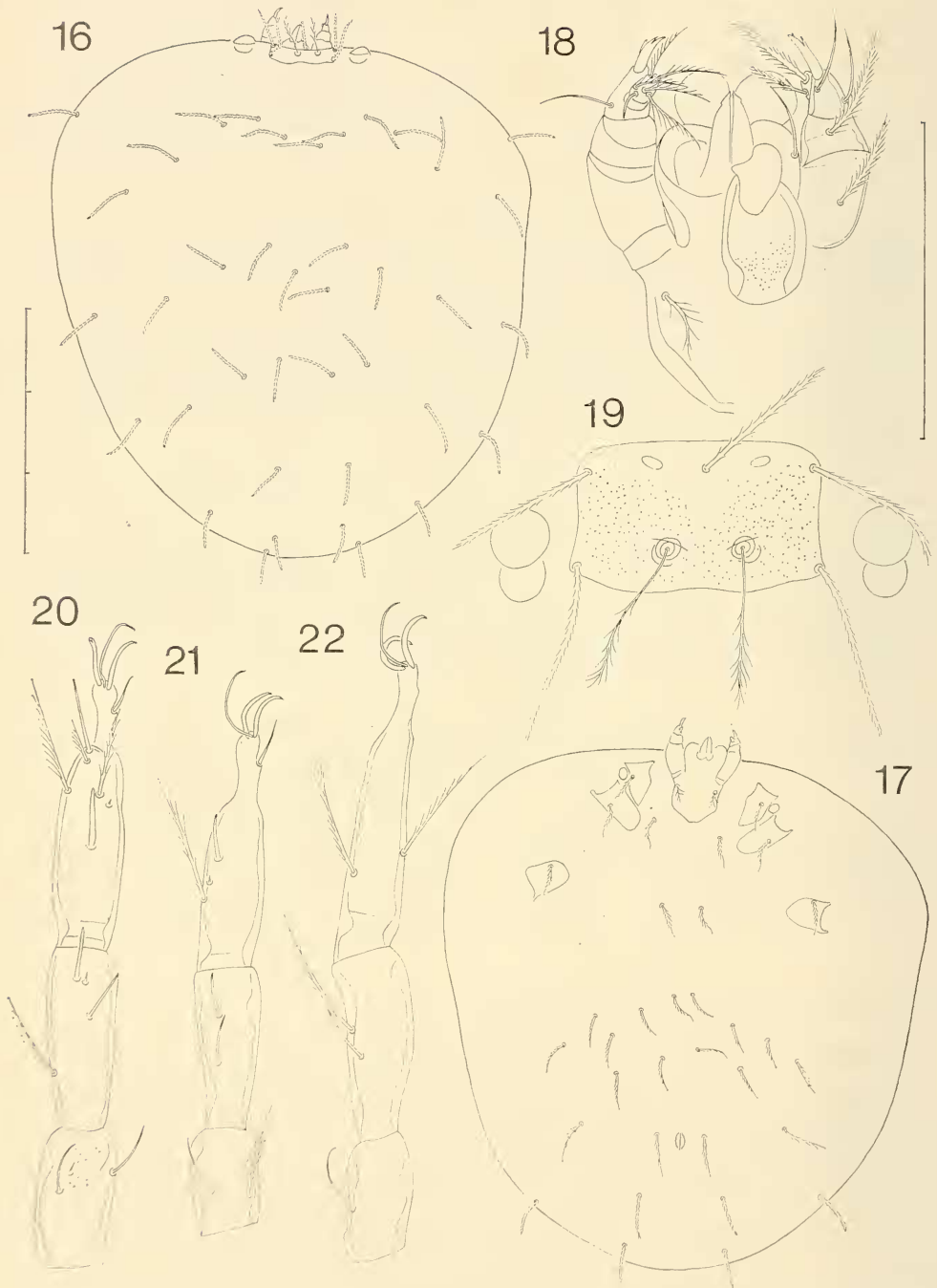
*Trombicula robusta* Gunther, 1941, *PROC. LINN. SOC. N.S.W.*, 66 : 157.

*Material.* Holotype and one paratype, the only specimens remaining of the original series from Bulolo, New Guinea (on the same slide, with holotype not differentiated and host not indicated).

Fourteen larvae, *Sauromarptis gaudichaud*, Vanimo, New Guinea, 25.iv.1965, W.B.H.

One larva, *Podargus strigoides*, Mudginberri, N.T., 31.iii.1971, A.L.D. and H.A.S.

*Notes.* This little known species belongs to a group of bird chiggers which engorge heavily, leaving the vertically orientated scutum almost impossible to examine. Thus only one of the type series and one of the 14 from Vanimo are measurable.



Figs 16-22. *Leptotrombidium robustum* larva. 16-17. Dorsal and ventral views of idiosoma (engorged). 18. Dorsal and ventral views of capitulum. 19. Scutum and eyes. 20-22. Specialized setation of legs I-III. (Each division on the scales = 100  $\mu$ .)

The Mudginberri specimen was taken with *L. myzantha* (see above), but shows DS 2.10.8.6.4.2.2 and VS 17.4.4.2. This compares better with the counts for specimens from Vanimo, which show DS 2.10-13.8-12.8-10.4-6.2.2 (av. 2.12.10.8.4.2.2), VS 12-15.4.4.2. The usual count for DS in *L. myzantha* is only 2.8.6.6.4.2.2. The scutal measurements of this specimen also compare better with undoubted specimens of *L. robustum* than with *L. myzantha*.

*Scutal standard data in micra of L. robustum*

AW	PW	SB	ASB	PSB	SD	AP	AM	AL	PL	Sens	Locality
73	81	25	31	13	44	30	42	48	52	50	Bulolo
73	77	23	34	13	47	31	48	49	57	51	Vanimo
77	81	25	34	16	50	33	49	49	58	64	Mudginberri
74	80	24	33	14	47	31	46	49	56	55	

I have placed this and the preceding species as conservatively as possible, noting that the nymph as well as the larva of Womersley's species is very similar to those of *Leptotrombidium* (see Domrow, 1957, 1960b; Nadchatram, 1967).

The plethora of taxa proposed for various members of this complex—*Toritrombicula* Sasa, Hayashi and Kawashima, *Vorcana* Audy, *Tsutsugamushia* Asanuma, *Cotrombidium* Vercammen-Grandjean, *Neacariscus* Vercammen-Grandjean, *Whartonacarus* Vercammen-Grandjean, and *Toriacarus* Vercammen-Grandjean and André (the lattermost with the same nominal type-species as *Cotrombidium*)—prompts some comment on recent trends in trombiculid taxonomy.

Complicated tables of genus-group taxa have been proposed, based essentially on the sensory setation of the larval appendages, with no attention to post-larval stages, and all characters equally weighted. This rigidity, coupled with a lack of attention to convergent (adaptive) characters and parallelism, has led to taxa containing species mismatched zoogeographically.

Further, it is implicit in this method that taxa may be validly defined by *differences*. But even Linnaeus saw that one cannot first choose a set of characters, and then decide that all species showing them are congeneric. It is the genus that dictates the characters, and the taxonomist must first recognize natural groups of species and then decide which characters diagnose the genus.

The former approach leads to a certain logicity, though two unfortunate aspects are the prediction of hypothetical groups and their subsequent proliferation as extremely small taxa. Any resulting system may be useful in that it is practical, but the natural (phylogenetic) classification we still lack will be based on degrees of *similarity* between taxa.

#### Genus NEOSCHOENGASTIA Ewing

##### 38. *Neoschoengastia americana* (Hirst)

*Schöngastia americana* Hirst, 1921, *Ann. Mag. nat. Hist.*, (9) 7 : 37.

*Neoschöngastia americana solomonis* Wharton and Hardcastle, 1946, *J. Parasit.*, 32 : 292. *New synonymy*.

*Paraschöngastia thomasi* Radford, 1946, *Proc. zool. Soc. Lond.*, 116 : 262. *New synonymy*.

*Neoschöngastia entomyza* Womersley, 1952, *Rec. S. Aust. Mus.*, 10 : 265. *New synonymy*.

*Material*. One paratype of *N. entomyza*.

Numerous larvae, *Ninox novaeseelandiae*, Kowanyama, Qd, iv.1969, R.D., A.L.D. and H.A.S. Numerous larvae, *Ninox connivens*, Kowanyama, Qd, iv.1969, R.D., A.L.D. and H.A.S.

Numerous larvae, *Podargus papuensis*, Kowanyama, Qd, iv.1969, R.D., A.L.D. and H.A.S.

One larva, *Pomatostomus temporalis*, Condamine, Qd, 12.i.1966, R.D., D.J.M. and J.S.W. One larva, *Artamus minor*, Kowanyama, Qd, 27.iv.1969, A.L.D. Fifteen larvae, *Pachycephala rufiventris*, Charleville, Qd, 18.i.1966, R.D., D.J.M. and J.S.W. One larva, *Struthidea cinerea*, Condamine, Qd, 12.i.1966, R.D., D.J.M. and J.S.W.

*Notes.* In all clear specimens, including the paratype, the long outstanding seta on tarsus III is distinctly ciliated, the sternal setae are arranged 2+2, and the DS 2.8.6.4.6.4.2. A few specimens from Charleville show only six setae in the first dorsal row, but are clearly conspecific (see Brennan, 1951). Likewise, Malayan material with intercoxal setae 2+4 (Domrow and Nadchatram, 1960) is retained here.

*Scutal standard data in micra of N. americana*

AW	PW	SB	ASB	PSB	SD	AP	AM	AL	PL	Sens	Locality
43	62	26	22	26	48	33	35	46	45	29×16	Kowanyama
46	67	—	23	34	57	35	34	42	42	—	"
40	64	25	19	32	51	29	33	—	48	—	"
45	61	28	16	34	50	27	34	43	43	30×17	"
43	65	22	25	27	52	30	—	35	50	—	Charleville
41	60	25	18	27	45	32	28	37	46	17	"
43	67	25	21	25	46	27	—	37	45	—	Condamine
43	64	25	21	29	50	30	33	40	46	30×17	

39. *Neoschoengastia posekanyii* Wharton and Hardcastle

*Neoschoengastia posekanyii* Wharton and Hardcastle, 1946, *J. Parasit.*, 32 : 302.

*Material.* Fifteen larvae attached to sternum, *Eopsaltria australis*, Bulli, N.S.W., 2.iii.1968, H.B. Four larvae attached to abdomen, *Sericornis lathamii*, Bulli, N.S.W., 1.i.1968, H.B. Seven red-orange larvae attached in opening of swellings on skin near cloaca, *Sericornis frontalis*, Bulli Pass, N.S.W., 31.xii.1966, P.D.S. Four red-orange larvae attached in opening of swelling on skin caudal to sternum on brood pouch, *Pachycephala pectoralis*, Bulli Pass, N.S.W., 1.i.1967, P.D.S.; one larva attached to abdomen, *P. pectoralis*, four miles west of Fairy Meadow, N.S.W., 26.iii.1967, H.B. One red-orange larva attached in opening of swelling on skin caudal to sternum on brood pouch, *Meliphaga lewinii*, Bulli Pass, N.S.W., 1.i.1967, P.D.S.; 18 larvae attached near cloaca, *M. lewinii*, Bulli, N.S.W., 1.i.1968, H.B. Five deep orange larvae attached to bare patch of skin on abdomen, *Meliornis novaehollandiae*, near Mount Keira, N.S.W., 4.ii.1967, H.B. Twelve larvae, *Oriolus sagittatus*, Esk, Qd, 13.ii.1968, R.D. and B.H.K.

*Notes.* These are all new host records (Domrow 1966).

Genus NEOTROMBICULA Hirst

40. *Neotrombicula antechinus* (Womersley)

*Trombicula antechinus* Womersley, 1954, *Trans. R. Soc. S. Aust.*, 77 : 69.

*Material.* Several larvae, *Antechinus stuartii*, Mount Nebo, Qd, 3.viii.1966, R.H.W.

Several larvae, *Rattus fuscipes*, Mount Glorious, Qd, ix and x.1955, R.D.

*Notes.* Scutal measurements (including a seta from the first dorsal row) of this topotypic material indicate that the shallowness of the posterior scutal margin (PSB 19) figured by Womersley is real, and the species is therefore maintained.



*Scutal standard data in micra of N. antechinus*

AW	PW	SB	ASB	PSB	SD	AP	AM	AL	PL	Sens	DS
70	86	27	31	21	52	30	54	—	52	93	53
64	87	29	32	19	51	32	45	—	50	95	45
62	81	29	32	17	49	30	45	40	—	96	49
64	83	27	32	19	51	30	45	—	51	—	49
63	82	26	32	19	51	32	—	38	43	—	46
61	82	27	33	20	53	33	46	43	46	90	45
64	84	28	32	19	51	31	47	40	48	94	48

41. *Neotrombicula comata* Domrow

*Neotrombicula comata* Domrow, 1961, PROC. LINN. SOC. N.S.W., 86 : 82.

*Material.* One larva attached to abdomen, *Sericornis frontalis*, Mount Keira, N.S.W., 24.ix.1967, H.B. One larva, *Climacteris leucophaea*, Mount Keira, N.S.W., 24.ix.1967, H.B.

Many larvae, *Macropus parma*, Doyle's River State Forest, 45 miles north-west of Wauchope, N.S.W., viii.1973, G.M.M.

One larva, *Dasyurus maculatus*, Bessiebelle, Vic., 28.vii.1964, R.J. Five larvae, *Antechinus stuartii*, near Melbourne, Vic., 29.viii.1972, R.S. One larva, *Antechinus swainsonii*, Sherbrooke Forest, Dandenong Ranges, Vic., 4.vii.1966, R.M.W.

Eight larvae, *Rattus fuscipes*, Heathmere, Vic., 22–24.vii.1968, J.H.S.

*Notes.* The only previous record is from a bandicoot (*Perameles*) in northern New South Wales. The present specimens agree closely with the original description, the DS commencing 2.12–16.10–14. Average scutal measurements are given below.

*Scutal standard data in micra of N. comata*

AW	PW	SB	ASB	PSB	SD	AP	AM	AL	PL	Sens	Host
79	98	30	35	20	55	37	—	—	—	—	<i>S. frontalis</i>
78	103	30	37	20	57	40	65	55	73	—	<i>C. leucophaea</i>
79	106	38	—	—	—	—	—	—	—	—	<i>D. maculatus</i>
82	107	39	39	20	60	41	62	58	64	—	<i>A. stuartii</i>
78	101	38	40	20	60	39	—	58	66	—	<i>A. swainsonii</i>
74	93	31	38	19	57	40	51	54	54	111	<i>R. fuscipes</i>

42. *Neotrombicula derricki* (Womersley)

*Trombicula derricki* Womersley, 1954, *Trans. R. Soc. S. Aust.*, 77 : 67.

*Material.* Three paratypes and several other specimens with the same data.

*Notes.* This species is distinct from other Australian species of *Neotrombicula* with one mastitibiala and two mastitarsalae on leg III (the other five are also listed in this paper) in showing two genualae I (both internal and external distal rather than internal distal alone), a long outstanding seta on telofemur III, and strongly branched sensillae.

43. *Neotrombicula gemini* Domrow

*Neotrombicula gemini* Domrow, 1971, *J. Aust. ent. Soc.*, 10 : 112.

*Material.* Twenty-nine larvae, *Rattus fuscipes*, Heathmere, Vic., 21–24.vii.1968, J.H.S.; three larvae, *R. fuscipes*, Forrest, Vic., 2.x.1967, J.H.S. and R.T.

*Notes.* These specimens confirm the original record. Variation from DS commencing 2.8.8 is minimal; in 40 specimens, four showed 2.8.7, four 2.9.8 and one 2.8.9.

44. *Neotrombicula novaehollandiae* (Hirst)

*Trombicula novaehollandiae* Hirst, 1929, *Proc. Zool. Soc. Lond.*, 1929 : 172.

*Material.* Two syntypes.

One larva attached near cloaca, *Sericornis frontalis*, Mount Keira, N.S.W., 24.ix.1967, H.B.

Eleven red larvae around eyes and mystacial vibrissae, and in ears, *Macropus rufogriseus*, Maydena, Tas., 15.ix.1961, B.C.M. Four larvae, *Macropus parma*, Doyle's River State Forest, 45 miles north-west of Wauchope, N.S.W., viii.1973, G.M.M. Twenty-four red larvae attached as for *M. rufogriseus*, *Thylogale billardieri*, Maydena, Tas., 4.ix.1951, B.C.M. Nine larvae attached behind scrotum, *Potorus tridactylus*, Cobargo, N.S.W., 8.ix.1968, A.L.D.

Eight larvae, *Trichosurus vulpecula*, North Midlands, Tas., 2.vii.1962, R.H.G.

Five larvae, *Dasyurus maculatus*, Bessieville, Vic., 29.vii.1964, R.J.; nine larvae, *D. maculatus*, Piper's River, Tas., 10.vi.1973, B.L.M. Eleven larvae, *Dasyurus vicerrinus*, Deddington, Tas., 27.vii.1972, R.H.G. Thirty-three larvae, *Antechinus flavipes*, Mount Robinson, S.A., 29.vi.1970, R.A. Six larvae, *Antechinus stuartii*, near Melbourne, Vic., 29.viii.1972, R.S. Thirteen larvae, *Antechinus swainsonii*, near Gembrook, Vic., 13.iii.1967, D.S.S.; nine larvae, *A. swainsonii*, Sherbrooke Forest, Dandenong Ranges, Vic., 4.vii.1966, R.M.W.

Thirty-five larvae, *Rattus fuscipes*, Mount Robinson, S.A., vi.1970, R.A.; 32 larvae, *R. fuscipes*, Mount Magnificent, S.A., 20.vii.1970, R.A.; two larvae, *R. fuscipes*, Heathmere, Vic., 21.vii.1968, J.H.S.; 24 larvae, *R. fuscipes*, Forrest, Vic., 1-2.x.1967, J.H.S. and R.T.; 31 larvae, *R. fuscipes*, Cordeaux Dam, N.S.W., 10.vii.1966, C.E.C. Two larvae, *Rattus lutreolus*, Forrest, Vic., 2.x.1967, J.H.S. and R.T.

*Notes.* This material is doubly valuable: the localities cover much of south-eastern Australia (including Tasmania), and the specimens from South Australia are virtually topotypes. The scutal standard data (average values) decrease towards the north, but clearly only one species is involved.

*Scutal standard data in micra of N. novaehollandiae*

AW	PW	SB	ASB	PSB	SD	AP	AM	AL	PL	Sens	DS	Locality
74	95	29	37	26	62	34	57	53	76	101	73	South Australia
71	95	29	36	26	62	34	57	54	68	106	64	Tasmania
71	94	30	38	24	62	34	57	57	74	109	70	Victoria
74	99	31	39	24	63	37	63	52	75	112	74	Cobargo
69	88	26	33	24	57	31	43	46	55	95	54	Cordeaux Dam
68	87	27	33	23	56	31	44	46	55	97	57	Doyle's River

The specimens from Gembrook, while showing a certain delicacy of structure and scutal measurements rather smaller than other Victorian specimens, are also assigned here.

AW	PW	SB	ASB	PSB	SD	AP	AM	AL	PL	Sens	DS
66	86	27	34	22	56	38	45	46	50	—	58
72	88	28	35	21	56	40	46	43	56	101	57
67	86	26	35	22	57	37	50	43	58	—	58
72	87	26	34	23	57	37	53	—	58	98	62
66	86	25	32	20	52	34	53	45	61	—	61
69	88	27	35	22	57	37	45	45	53	95	53
69	87	26	34	22	56	37	49	44	56	98	58

45. *Neotrombicula thylogale* (Womersley)

*Trombicula thylogale* Womersley, 1954, *Trans. R. Soc. S. Aust.*, 77: 71.

*Material.* Three paratypes and several other specimens with the same data.

*Notes.* Scutal measurements of this material indicate that the shallowness of the shield (AP 25) figured by Womersley is real, and the species is therefore maintained.

*Scutal standard data in micra of N. thylogale*

AW	PW	SB	ASB	PSB	SD	AP	AM	AL	PL	Sens	DS
64	80	26	32	21	53	25	—	—	—	—	50
66	82	28	31	25	56	25	32	40	43	—	46
67	85	30	31	25	56	25	36	—	46	95	48
64	81	27	30	22	52	25	35	—	49	—	50
67	84	28	30	22	52	25	34	41	50	—	46
65	81	27	30	22	52	25	35	40	48	90	51
66	82	28	31	23	54	25	34	40	47	92	48

Genus *SISECA* Audy46. *Siseca rara* (Walch)

*Trombicula rara* Walch, 1924, *Trans. V bienn. Congr. fur east. Assoc. trop. Med.* (Singapore, 1923), 593.

*Material.* Two larvae attached in axillae, *Lygosoma tenuis*, Colcarra Creek, near Yeppoon, Qd, 31.viii.1965, H.A.S.; 14 parchment-coloured larvae attached in axillae, *L. tenuis*, Manifold Station, near Rockhampton, Qd, 4.ix.1965, H.A.S.

*Notes.* This species has not previously been recorded from Australia, but the scutal measurements of the above specimens agree with Womersley's (1952) larger values for material from the Philippines and New Guinea (it should be noted that this author's material from Malaya and Queensland has since been described as two distinct species, *S. subrara* Audy and *S. southcotti* Womersley and Audy, see Domrow, 1962a).

*Scutal standard data in micra of S. rara*

AW	PW	SB	ASB	PSB	SD	AP	AM	AL	PL	Sens
86	102	62	17	45	62	36	25	23	36	—
92	110	64	19	52	71	36	—	24	38	—
86	103	61	19	45	64	32	—	—	—	61
87	105	61	19	46	65	35	—	20	34	—
79	97	55	20	44	64	39	24	20	32	58
85	102	58	20	47	67	33	27	22	34	—
85	103	59	21	48	69	35	27	22	36	—
86	103	60	19	47	66	35	26	22	35	60

47. *Siseca vandiemeni* Domrow

*Siseca vandiemeni* Domrow, 1962, *J. ent. Soc. Qd.*, 1: 23.

*Material.* Twenty-six larvae, *Lygosoma ocellatum*, North Scotdale, Tas., 21.i.1962, R.H.G.

*Notes.* This is a new host record (Domrow, 1962a).

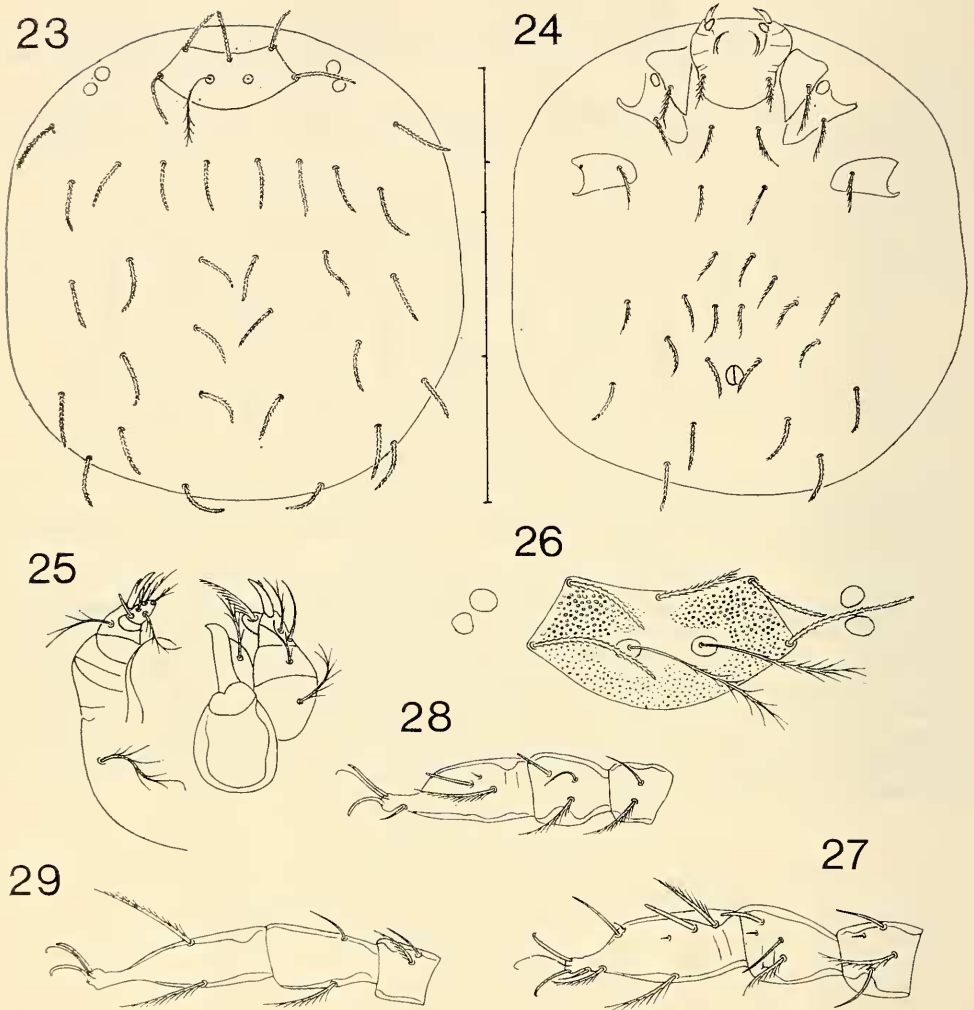
Genus *TROMBICULA* Berlese48. *Trombicula quadriensis* Womersley and Heaslip

(Figs 23-29)

*Trombicula quadriense* Womersley and Heaslip, 1943 (*sic*), *Trans. R. Soc. S. Aust.*, 67: 79.

*Material.* One paratype from Cairns, Qd.

Three larvae, *Trichosurus vulpecula*, D'Aguilar Range, Qd, 4.iv.1957, R.D.



Figs 23-29. *Trombicula quadriensis* larva. 23-24. Dorsal and ventral views of idiosoma (engorged). 25. Dorsal and ventral views of capitulum. 26. Scutum and eyes. 27-29. Specialized setation of legs I-III. (Each division on the scales=100 $\mu$ .)

One larva, *Antechinus stuartii*, near Melbourne, Vic., 29.viii.1972, R.S.; seven larvae, *A. stuartii*, Powelltown, Vic., vii-viii.1973, I.B.

Notes. Previous records of this species as originally understood are all from North Queensland (Domrow, 1962b, 1967b). Standard scutal measurements are:

AW	PW	SB	ASB	PSB	SD	AP	AM	AL	PL	Sens	Locality
57	82	22	18	20	38	23	29	29	41	--	Palmerston
56	83	22	20	20	40	22	32	29	37	53	"
55	80	20	20	19	39	22	26	26	40	---	"
43	66	16	20	19	39	22	---	26	32	---	D'Aguilar
49	73	18	21	20	41	21	---	25	32	---	"
53	81	17	24	20	44	22	25	30	43	---	Melbourne
52	78	19	20	20	40	22	28	28	38	53	

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## CORRIGENDA

*Acarologia*, 13: 557. In couplet 1 of key, amend setal formulae to read 1-3/2-0 and 1-3/1-0. *PROC. LINN. SOC. N.S.W.*, 88: 218. In line 6, read "eared" for "earless". *PROC. LINN. SOC. N.S.W.*, 93: 314. In line 6, read "textureless" for "textures".